Fig. 1 Cleavage and Polyadenylation Process For The SV40 early Poly(A) site

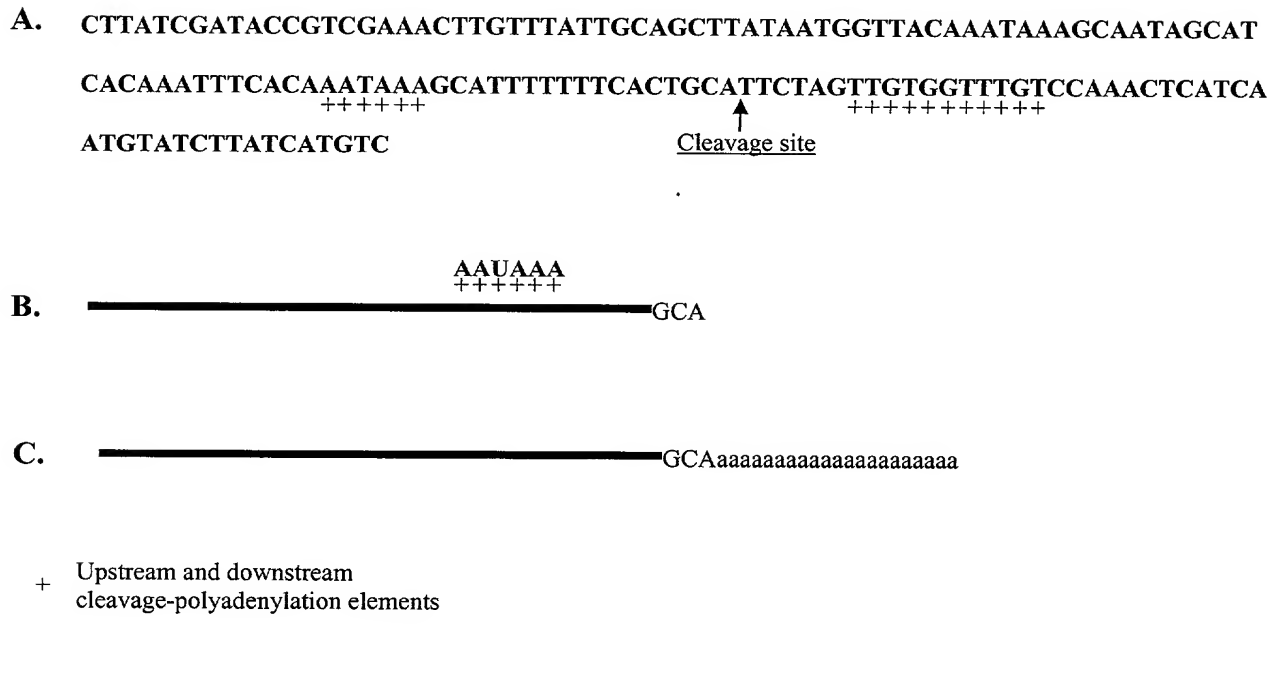

Fig 2 E1A transcription control region

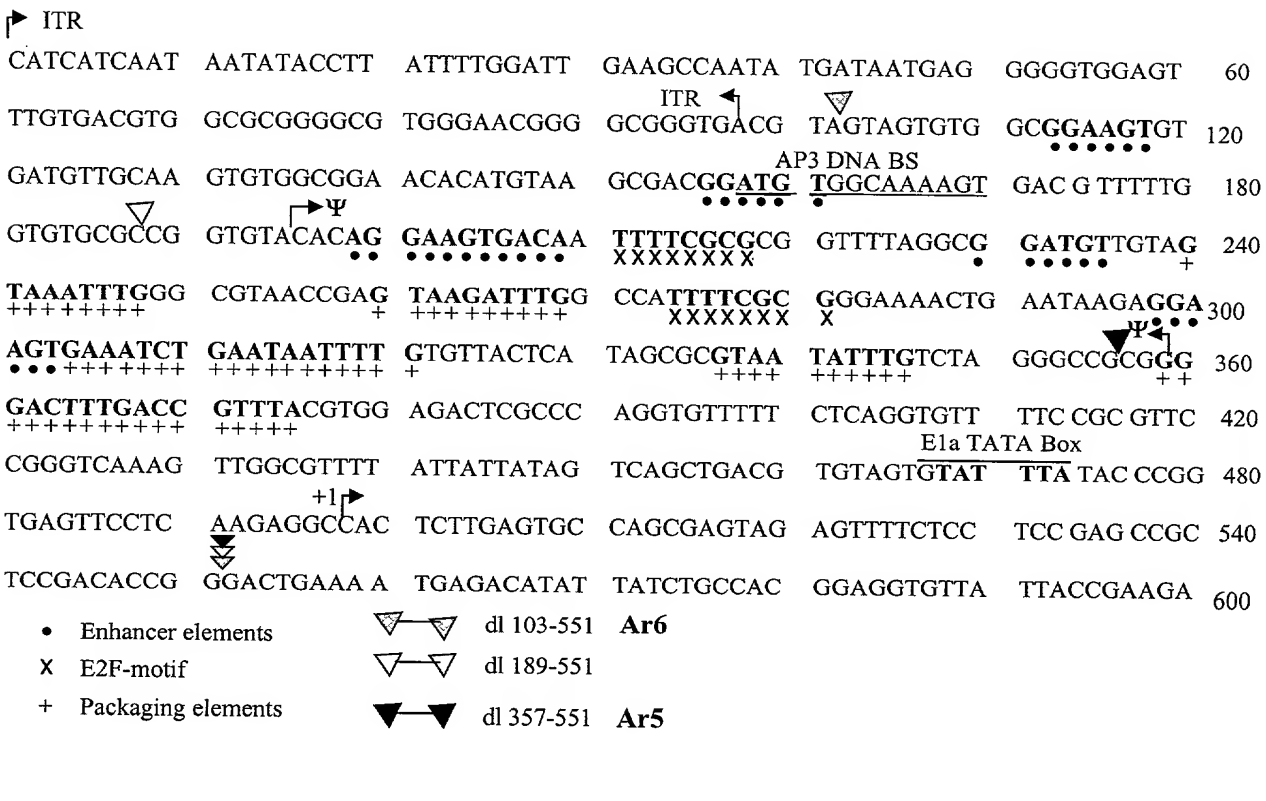

Figure 3. Sequence of Ar6pAE2fF from left and right ends of viral DNA

A. Nucleotides 1-1802 containing ITR, polyA, E2F-1 promoter, E1a and a portion of the E1b gene

```
   1 CATCATCAATAATATACCTTATTTTGGATTGAAGCCAATATGATAATGAGGGGGTGGAGT
     +-------------------------ITR------------------------------

  61 TTGTGACGTGGCGCGGGGCGTGGGAACGGGGCGGGTGACGTAGGGCGCGATCAAGCTTAT
     +-------------------------ITR-----------+             +----

 121 CGATACCGTCGAAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATC
     -------------------------polyA----------------------------

 181 ACAAATTTCACAAATAAAGCATTTTTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTC
     -------------------------polyA----------------------------

 241 ATCAATGTATCTTATCATGTCTGGATCCGCGCCGCTAGCGATCATCCGGACAAAGCCTGC
     --------------------+                       +----------------

 301 GCGCGCCCCGCCCCGCCATTGGCCGTACCGCCCCGCGCCGCCGCCCCATCTCGCCCCTCG
     ----------------------E2F-1 promoter---------------------

 361 CCGCCGGGTCCGGCGCGTTAAAGCCAATAGGAACCGCCGCCGTTGTTCCCGTCACGGCCG
     ----------------------E2F-1 promoter---------------------

 421 GGGCAGCCAATTGTGGCGGCGCTCGGCGGCTCGTGGCTCTTTCGCGGCAAAAAGGATTTG
     ----------------------E2f-1 promoter---------------------

 481 GCGCGTAAAAGTGGCCGGGACTTTGCAGGCAGCGGCGGCCGGGGGCGGAGCGGGATCGAG
     ----------------------E2f-1 promoter---------------------

 541 CCCTCGATGATATCAGATCATCGGATCCCGGTCGACTGAAAATGAGACATATTATCTGCC
     -------------+                    +-------------------------

 601 ACGGAGGTGTTATTACCGAAGAAATGGCCGCCAGTCTTTTGGACCAGCTGATCGAAGAGG
     -------------------------E1a gene---------------------------

 661 TACTGGCTGATAATCTTCCACCTCCTAGCCATTTTGAACCACCTACCCTTCACGAACTGT
     -------------------------E1a gene---------------------------

 721 ATGATTTAGACGTGACGGCCCCCGAAGATCCCAACGAGGAGGCGGTTTCGCAGATTTTTC
     -------------------------E1a gene---------------------------

 781 CCGACTCTGTAATGTTGGCGGTGCAGGAAGGGATTGACTTACTCACTTTTCCGCCGGCGC
     -------------------------E1a gene---------------------------

 841 CCGGTTCTCCGGAGCCGCCTCACCTTTCCCGGCAGCCCGAGCAGCCGGAGCAGAGAGCCT
     -------------------------E1a gene---------------------------
```

```
 901  TGGGTCCGGTTTCTATGCCAAACCTTGTACCGGAGGTGATCGATCTTACCTGCCACGAGG
      ------------------------E1a gene--------------------------

 961  CTGGCTTTCCACCCAGTGACGACGAGGATGAAGAGGGTGAGGAGTTTGTGTTAGATTATG
      ------------------------E1a gene--------------------------

1021  TGGAGCACCCCGGGCACGGTTGCAGGTCTTGTCATTATCACCGGAGGAATACGGGGGACC
      ------------------------E1a gene--------------------------

1081  CAGATATTATGTGTTCGCTTTGCTATATGAGGACCTGTGGCATGTTTGTCTACAGTAAGT
      ------------------------E1a gene--------------------------

1141  GAAAATTATGGGCAGTGGGTGATAGAGTGGTGGGTTTGGTGTGGTAATTTTTTTTTTAAT
      ------------------------E1a gene--------------------------

1201  TTTTACAGTTTTGTGGTTTAAAGAATTTTGTATTGTGATTTTTTTAAAAGGTCCTGTGTC
      ------------------------E1a gene--------------------------

1261  TGAACCTGAGCCTGAGCCCGAGCCAGAACCGGAGCCTGCAAGACCTACCCGCCGTCCTAA
      ------------------------E1a gene--------------------------

1321  AATGGCGCCTGCTATCCTGAGACGCCCGACATCACCTGTGTCTAGAGAATGCAATAGTAG
      ------------------------E1a gene--------------------------

1381  TACGGATAGCTGTGACTCCGGTCCTTCTAACACACCTCCTGAGATACACCCGGTGGTCCC
      ------------------------E1a gene--------------------------

1441  GCTGTGCCCCATTAAACCAGTTGCCGTGAGAGTTGGTGGGCGTCGCCAGGCTGTGGAATG
      ------------------------E1a gene--------------------------

1501  TATCGAGGACTTGCTTAACGAGCCTGGGCAACCTTTGGACTTGAGCTGTAAACGCCCCAG
      ------------------------E1a gene--------------------------

1561  GCCATAAGGTGTAAACCTGTGATTGCGTGTGTGGTTAACGCCTTTGTTTGCTGAATGAGT
      ------------------------E1a gene--------------------------

1621  TGATGTAAGTTTAATAAAGGGTGAGATAATGTTTAACTTGCATGGCGTGTTAAATGGGGC
      -----------------------------+------------------------------

1681  GGGGCTTAAAGGGTATATAATGCGCCGTGGGCTAATCTTGGTTACATCTGACCTCATGGA
      ------------------------E1b gene--------------------------

1741  GGCTTGGGAGTGTTTGGAAGATTTTTCTGCTGTGCGTAACTTGCTGGAACAGAGCTCTAA
      ------------------------E1b gene--------------------------

1801  CA
      --
```

B. Nucleotides 33881-34412 containing packaging signal and ITR

```
33881 AACCTACGCCCAGAAACGAAAGCCAAAAAACCCACAACTTCCTCAAATCGTCACTTCCGT

33941 TTTCCCACGTTACGTCACTTCCCATTTTAATTAAGAATTCTACAATTCCCAACACATACA

34001 AGTTACTCCGCCCTAAAACCCTGGCGAGTCTCCACGTAAACGGTCAAAGTCCCCGCGGC
                         +-packaging signal-----------------------

34061 CCTAGACAAATATTACGCGCTATGAGTAACACAAAATTATTCAGATTTCACTTCCTCTTA
      ---------------------packaging signal-----------------------

34121 TTCAGTTTTCCCGCGAAAATGGCCAAATCTTACTCGGTTACGCCCAAATTTACTACAACA
      ---------------------packaging signal-----------------------

34181 TCCGCCTAAAACCGCGCGAAAATTGTCACTTCCTGTGTACACCGGCGCACACCAAAAACG
      ------------------------------------+

34241 TCACTTTTGCCACATCCGTCGCTTACATGTGTTCCGCCACACTTGCAACATCACACTTCC

34301 GCCACACTACTACGTCACCCGCCCCGTTCCCACGCCCCGCGCCACGTCACAAACTCCACC
               +-----------------ITR------------------------------

34361 CCCTCATTATCATATTGGCTTCAATCCAAAATAAGGTATATTATTGATGATG
      ---------------------------ITR---------------------+
```

Figure 4. Sequence of Ar6F from left end of viral DNA

```
  1 CATCATCAATAATATACCTTATTTTGGATTGAAGCCAATATGATAATGAGGGGGTGGAGT
    +-------------------------ITR---------------------------------

 61 TTGTGACGTGGCGCGGGGCGTGGGAACGGGGCGGGTGACGTAGGGCGCGCCGCTAGCGAT
    ---------------------------ITR---------------++------MCS--------

121 ATCGGATCCCGGTCGACTGAAAATGAGACATATTATCTGCCACGGAGGTGTTATTACCGA
    --------------+------------E1a--------------------------------

181 AGAAATGGCCGCCAGTCTTTTGGACCAGCTGATCGAAGAGGTACTGGCTGATAATCTTCC
    ----------------------------E1a--------------------------------

241 ACCTCCTAGCCATTTTGAACCACCTACCCTTCACGAACTGTATGATTTAGACGTGACGGC
    ----------------------------E1a--------------------------------

301 CCCCGAAGATCCCAACGAGGAGGCGGTTTCGCAGATTTTTCCCGACTCTGTAATGTTGGC
    ----------------------------E1a--------------------------------

361 GGTGCAGGAAGGGATTGACTTACTCACTTTTCCGCCGGCGCCCGGTTCTCCGGAGCCGCC
    ----------------------------E1a--------------------------------

421 TCACCTTTCCCGGCAGCCCGAGCAGCCGGAGCAGAGAGCCTTGGGTCCGGTTTCTATGCC
    ----------------------------E1a--------------------------------

481 AAACCTTGTACCGGAGGTGATCGATCTTACCTGCCACGAGGCTGGCTTTCCACCCAGTGA
    ----------------------------E1a--------------------------------

541 CGACGAGGATGAAGAGGGTGAGGAGTTTGTGTTAGATTATGTGGAGCACCCCGGGCACGG
    ----------------------------E1a--------------------------------

601 TTGCAGGTCTTGTCATTATCACCGGAGGAATACGGGGGACCCAGATATTATGTGTTCGCT
    ----------------------------E1a--------------------------------
```

Figure 5. Sequence of Ar6pAF from left end of viral DNA

```
  1 CATCATCAATAATATACCTTATTTTGGATTGAAGCCAATATGATAATGAGGGGGTGGAGT
    +--------------------------ITR-----------------------------------

 61 TTGTGACGTGGCGCGGGGCGTGGGAACGGGGCGGGTGACGTAGGGCGCGATCAAGCTTAT
    ---------------------------ITR--------------+             +----

121 CGATACCGTCGAAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATC
    --------------------------polyA-------------------------------

181 ACAAATTTCACAAATAAAGCATTTTTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTC
    --------------------------polyA-------------------------------

241 ATCAATGTATCTTATCATGTCTGGATCCGCGCCGCTAGCGATATCGGATCCCGGTCGACT
    ---------------------+                                       +--

301 GAAAATGAGACATATTATCTGCCACGGAGGTGTTATTACCGAAGAAATGGCCGCCAGTCT
    --------------------------E1a--------------------------------

361 TTTGGACCAGCTGATCGAAGAGGTACTGGCTGATAATCTTCCACCTCCTAGCCATTTTGA
    --------------------------E1a--------------------------------

421 ACCACCTACCCTTCACGAACTGTATGATTTAGACGTGACGGCCCCCGAAGATCCCAACGA
    --------------------------E1a--------------------------------

481 GGAGGCGGTTTCGCAGATTTTTCCCGACTCTGTAATGTTGGCGGTGCAGGAAGGGATTGA
    --------------------------E1a--------------------------------

541 CTTACTCACTTTTCCGCCGGCGCCCGGTTCTCCGGAGCCGCCTCACCTTTCCCGGCAGCC
    --------------------------E1a--------------------------------

601 CGAGCAGCCGGAGCAGAGAGCCTTGGGTCCGGTTTCTATGCCAAACCTTGTACCGGAGGT
    --------------------------E1a--------------------------------
```

Figure 6. Schematic diagram of Ar6pAF and Ar6pAE2fF vectors

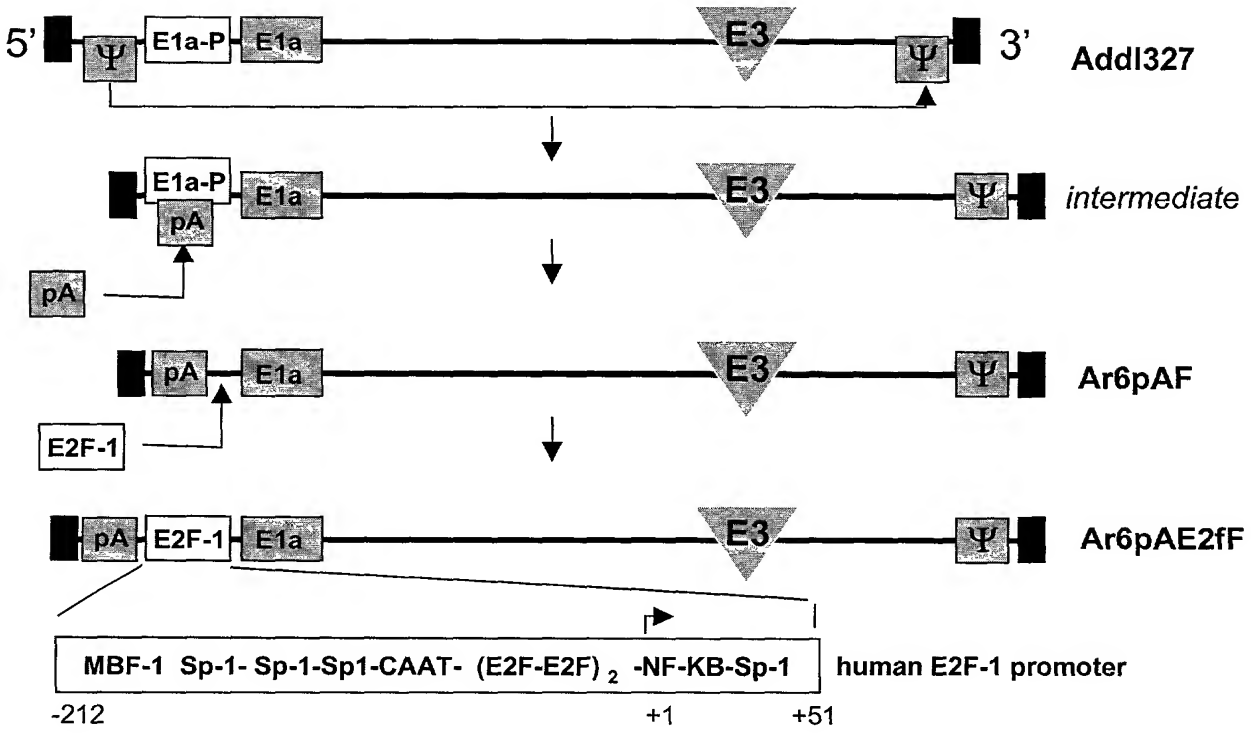

Fig. 7 Body weight change

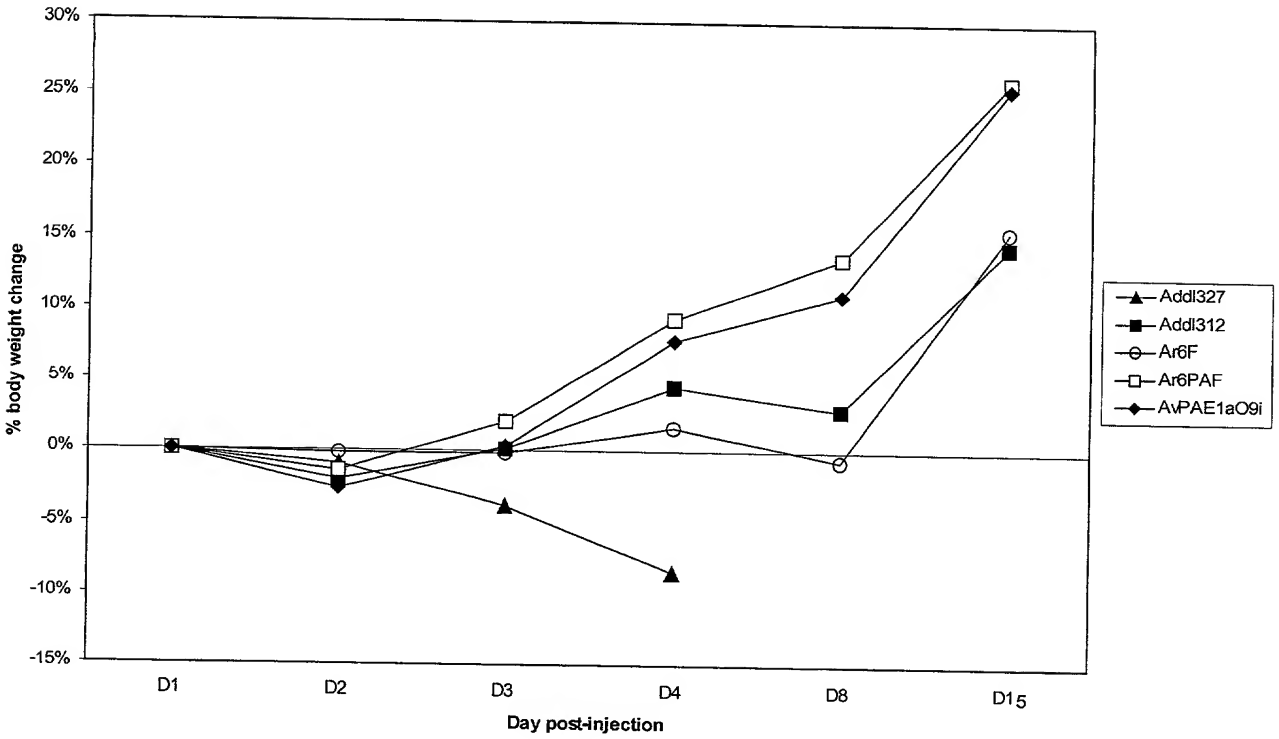

Fig. 8 Minimizing nonspecific transactivation of E1a gene

Backbones generated: